Environmental Profile

This LCA is calculated according to: ISO 14044, ISO 14040 and EN 15804

Ecochain v3.5.80

Product:	3029279 - X-Stream PP Reducer BK 500x315 PVC
Unit:	1 piece
Manufacturer:	Wavin - PL -Buk - Extra products

Wavin X-Stream is a new generation of double-walled pipes and □ttings made of polypropylene. The system is

LCA standard:	EN15804+A2 (2019)
Standard database:	Worldwide - Ecoinvent v 3.6 Cut-Off
Externally verified:	Yes
Issue date:	08-06-2023
End of validity:	08-06-2028
Verifier:	Martijn van Hövell - SGS Search

This LCA was evaluated according to EN15804+A2. It was concluded that the LCA complies with this standard

The LCA background information and project dossier have been registered in the online Ecochain application in the account Wavin - PL -Buk - Extra products (2020). (☑ = module declared, MND = module not declared).

A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
☑	☑	☑	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	☑	☑	☑	☑

Product stage

A1 Raw material supply A2 Transport A3 Manufacturing

Construction process stage

A4 Transport gate to site
A5 Assembly / Construction installation process

Use stage

B1 Use B2 Maintenance B3 Repair B4 Replacement B5 Refurbishment
B6 Operational energy use B7 Operational water use

End-of-Life stage

C1 De-construction demolition C2 Transport C3 Waste processing
C4 Disposal

Benefits and loads beyond the system boundaries

D Reuse- Recovery- Recycling- potential

Environmental impacts and parameters

GWP-total = EF EN15804+A2 Climate Change [kg CO2 eq]; **GWP-f** = EF Climate change - Fossil [kg CO2 eq]; **GWP-b** = EF EN15804+A2 Climate Change - Biogenic [kg CO2 eq]; **GWP-luluc** = EF EN15804+A2 Climate Change - Land use and LU change [kg CO2 eq]; **ODP** = EF Ozone depletion [kg CFC11 eq]; **AP** = EF Acidification [mol H+ eq]; **EP-fw** = EF Eutrophication, freshwater [kg P eq]; **EP-m** = EF Eutrophication, marine [kg N eq]; **EP-T** = EF Eutrophication, terrestrial [mol N eq]; **POCP** = EF Photochemical ozone formation [kg NMVOC eq]; **ADP-mm** = EF Resource use, minerals and metals [kg Sb eq]; **ADP-f** = EF Resource use, fossils [MJ]; **WDP** = EF Water use [m3 depriv.]; **PM** = EF Particulate matter [disease inc.]; **IR** = EF Ionising radiation [kBq U-235 eq]; **ETP-fw** = EF Ecotoxicity, freshwater [CTUe]; **HTP-c** = EF Human toxicity, cancer [CTUh]; **HTP-nc** = EF Human toxicity, non-cancer [CTUh]; **SQP** = EF Land use [Pt]; **PERE** = Use of renewable primary energy excluding renewable primary energy resources used as raw materials [MJ]; **PERM** = Use of renewable primary energy resources used as raw materials [MJ]; **PERT** = Total use of renewable primary energy resources [MJ]; **PENRE** = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials [MJ]; **PENRM** = Use of non-renewable primary energy resources used as raw materials [MJ]; **PENRT** = Total use of non-renewable primary energy resources [MJ]; **PET** = Total energy [MJ]; **SM** = Use of secondary material [kg]; **RSF** = Use of renewable secondary fuels [MJ]; **NRSF** = Use of non-renewable secondary fuels [MJ]; **FW** = Use of net fresh water [m3]; **HWD** = Hazardous waste disposed [kg]; **NHWD** = Non-hazardous waste disposed [kg]; **RWD** = Radioactive waste disposed [kg]; **CRU** = Components for re-use [kg]; **MFR** = Materials for recycling [kg]; **MER** = Materials for energy recovery [kg]; **EE** = Exported energy [MJ]; **EET** = Exported energy thermic [MJ]; **EEE** = Exported energy electric [MJ]

Statement of Confidentiality

Results

Environmental impact	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	1.07E+1	5.56E-1	4.80E-2	1.14E+1	2.51E-1	2.03E+1	1.19E-1	-1.33E+1	1.87E+1
GWP-f	kg CO2 eq	2.29E+1	5.55E-1	4.84E-2	2.35E+1	2.51E-1	7.97E+0	1.19E-1	-1.33E+1	1.86E+1
GWP-b	kg CO2 eq	-1.22E+1	3.37E-4	-5.11E-4	-1.22E+1	1.52E-4	1.23E+1	1.04E-4	-4.06E-2	9.79E-2
GWP-luluc	kg CO2 eq	1.25E-2	1.96E-4	4.95E-5	1.27E-2	8.88E-5	1.43E-3	2.03E-6	-7.57E-3	6.69E-3
ODP	kg CFC11 eq	9.00E-7	1.28E-7	2.74E-9	1.03E-6	5.78E-8	1.97E-7	2.99E-9	-6.84E-7	6.05E-7
AP	mol H+ eq	8.82E-2	3.16E-3	4.89E-4	9.19E-2	1.43E-3	8.35E-3	7.14E-5	-4.29E-2	5.88E-2
EP-fw	kg P eq	4.11E-4	4.57E-6	2.73E-6	4.18E-4	2.07E-6	4.16E-5	9.30E-8	-2.00E-4	2.62E-4
EP-m	kg N eq	1.60E-2	1.13E-3	5.14E-5	1.72E-2	5.12E-4	2.50E-3	4.81E-5	-8.60E-3	1.16E-2
EP-T	mol N eq	1.82E-1	1.25E-2	6.14E-4	1.95E-1	5.64E-3	2.76E-2	2.90E-4	-9.81E-2	1.31E-1
POCP	kg NMVOC eq	7.88E-2	3.56E-3	2.08E-4	8.25E-2	1.61E-3	8.59E-3	1.09E-4	-4.11E-2	5.18E-2
ADP-mm	kg Sb eq	5.58E-4	1.44E-5	6.52E-6	5.79E-4	6.49E-6	3.19E-5	7.19E-8	-1.08E-4	5.09E-4
ADP-f	MJ	7.50E+2	8.52E+0	4.49E-1	7.59E+2	3.85E+0	2.54E+1	2.18E-1	-3.93E+2	3.96E+2
WDP	m3 depriv.	1.45E+1	2.61E-2	1.73E-2	1.45E+1	1.18E-2	4.88E-1	1.08E-3	-6.81E+0	8.21E+0
PM	disease inc.	9.91E-7	5.01E-8	3.01E-9	1.04E-6	2.27E-8	1.34E-7	1.50E-9	-4.76E-7	7.26E-7
IR	kBq U-235 eq	5.31E-1	3.72E-2	3.37E-4	5.69E-1	1.68E-2	7.81E-2	1.01E-3	-2.45E-1	4.20E-1
ETP-fw	CTUe	1.87E+2	6.92E+0	4.00E+0	1.98E+2	3.13E+0	2.91E+1	1.88E-1	-9.47E+1	1.36E+2
HTP-c	CTUh	1.15E-8	2.46E-10	2.04E-10	1.19E-8	1.11E-10	3.61E-9	5.33E-12	-5.90E-9	9.77E-9
HTP-nc	CTUh	2.01E-7	8.25E-9	5.19E-9	2.14E-7	3.73E-9	4.30E-8	1.19E-10	-9.10E-8	1.70E-7
SQP	Pt	1.08E+3	7.29E+0	7.42E-1	1.09E+3	3.30E+0	2.02E+1	5.60E-1	-7.87E+2	3.24E+2

Resource use	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
PERE	MJ	1.97E+2	1.22E-1	7.96E+0	2.05E+2	5.53E-2	1.23E+0	8.50E-3	-1.23E+2	8.36E+1
PERM	MJ	0	0	0	0	0	0	0	0	0
PERT	MJ	1.97E+2	1.22E-1	7.96E+0	2.05E+2	5.53E-2	1.23E+0	8.50E-3	-1.23E+2	8.36E+1
PENRE	MJ	8.05E+2	9.05E+0	4.78E-1	8.15E+2	4.09E+0	2.70E+1	2.32E-1	-4.24E+2	4.22E+2
PENRM	MJ	0	0	0	0	0	0	0	0	0
PENRT	MJ	8.05E+2	9.05E+0	4.78E-1	8.15E+2	4.09E+0	2.70E+1	2.32E-1	-4.24E+2	4.22E+2
PET	MJ	1.00E+3	9.17E+0	8.44E+0	1.02E+3	4.15E+0	2.83E+1	2.40E-1	-5.46E+2	5.06E+2
SM	kg	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0
FW	m3	2.32E-1	9.64E-4	4.83E-4	2.34E-1	4.36E-4	1.52E-2	2.69E-4	-1.08E-1	1.42E-1

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D	Total
HWD	kg	2.05E-4	2.18E-5	9.05E-11	2.26E-4	9.85E-6	4.23E-5	2.63E-7	-1.50E-4	1.28E-4
NHWD	kg	1.53E+0	5.28E-1	3.49E-4	2.06E+0	2.39E-1	1.30E+0	9.62E-1	-7.15E-1	3.84E+0
RWD	kg	5.37E-4	5.79E-5	3.63E-11	5.95E-4	2.62E-5	9.97E-5	1.43E-6	-2.42E-4	4.81E-4
CRU	kg	0	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	0	0	0
MER	kg	0	0	0	0	0	0	0	0	0
EE	MJ	0	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0	0

Ecochain Technologies BV
H.J.E. Wenckebachweg 123, 1096 AM Amsterdam, The Netherlands
https://www.ecochain.com
+31 20 3035 777